

U.S. Appl. No. 10/090,861
Reply to Office Action dated May 5, 2005

PATENT
450117-03754

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) Method for recognizing speech comprising the steps of:

wherein providing a pronunciation space (PS) of including possible pronunciation rules and/or sets thereof, is provided, wherein in said pronunciation space (PS) includes an at least approximate approximate set of pronunciation rules (APR) is determined and/or generated in accordance with a current pronunciation (CP) and/or accent of a current speaker, and

providing wherein at least one current lexicon (CL) or a dictionary of pronunciation variant variants, which is employed for recognition, is adapted to said current speaker by applying at least said approximate approximate set of pronunciation rules (APR) to it, thereby at least including speaker specific pronunciation variants to said current lexicon (CL);

projecting said current pronunciation (CP) into said pronunciation space (PS);

calculating distance values (d1, ..., d4) with respect to Eigenpronunciations (E1, ..., E4); determining a lowest distance value (d4); and

choosing a set of pronunciation rules as said approximate set of pronunciation rules (APR) which correspond to the Eigenpronunciation (E4) being assigned to said lowest distance value (d4).

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2. (Original) Method according to claim 1, wherein said step of adapting said current lexicon (CL) is carried out repeatedly, in particular after completed recognition steps and/or obtained recognition results.

3. (Currently Amended) Method according to claim 1, wherein said step of determining and/or generating said ~~approximative~~ approximate set of pronunciation rules (APR) is carried out repeatedly, so as to iteratively find an ~~approximative~~ approximate set of pronunciation rules (APR) fitting best to said current pronunciation (CP) and/or accent of said current speaker, in particular to consider temporal pronunciation and/or accent variations of said current speaker and/or in particular after completed recognition steps and/or obtained recognition results.

4. (Previously Presented) Method according to claim 1, wherein said pronunciation space (PS) is generated and/or provided in a pre-processing step, in particular in advance in a recognition process.

5. (Currently Amended) Method according to claim 1, wherein said pronunciation space (PS) is derived from a plurality and/or limited number of so-called Eigenpronunciations.

6. (Original) Method according to claim 5, wherein said Eigenpronunciations are derived from, contain and/or are representative for certain and

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given pronunciation rules and/or sets thereof, in particular for at least one non-native speaker of at least one target language (TL) with at least one source language (SL) as a mother or native tongue or language of said current speaker.

7. (Currently Amended) Method according to claim 1, wherein said pronunciation space (PS) is modified during the process of recognition, in particular after completed recognition steps and/or obtained recognition results and/or in particular by modifying one or more ~~said~~ Eigenpronunciations.

8. (Currently Amended) Method according to claim 1, wherein said step of determining and/or generating said ~~approximative~~ approximate set of pronunciation rules (APR) comprises a step of determining a pronunciation-related position of a current speaker in said pronunciation space (PS), in particular in accordance with a current pronunciation (CP) and/or accent of said current speaker.

9. (Currently Amended) Method according to claim 1, wherein said ~~approximative~~ approximate set of pronunciation rules (APR) is chosen as a given and specific set of pronunciation rules in said pronunciation space (PS), in particular as a given and specific Eigenpronunciation thereof, which is a next neighbour of the speaker's current pronunciation (CP), in particular with respect to ~~said a~~ a pronunciation-related position.

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10. (Original) Method according to claim 9, wherein said property of being a next neighbour is evaluated by means of a certain given measure or distance function, in particular by an Euclidean distance, in said pronunciation space (PS).

11. (Currently Amended) Method according to claim 1, wherein said ~~approximative~~ approximate set of pronunciation rules (APR) is chosen as a weighted mixture, superposition ~~and/or the like of~~ and given pronunciation rules, sets, derivatives, and/or components thereof in said pronunciation space (PS), in particular of ~~said one or more~~ Eigenpronunciations.

12. (Previously Presented) Method according to claim 1, wherein said current lexicon (CL) is in each case at least partially based on and/or derived from a starting lexicon (SL) or initial lexicon, in particular on a canonical lexicon essentially containing canonical pronunciation variants of native speakers of a given target language (TL) only and/or in particular in the case of changing to a different and/or new speaker.

13. (Currently Amended) Method according to claim 1, wherein the step of determining and/or generating said approximate set of pronunciation rules (APR) is at least partially based on and/or derived from a comparison of the current pronunciation (CP) with a canonical pronunciation, in particular with respect to a given utterance, recognition result ~~and/or the like~~ and/or in particular in the beginning of a recognition session with a different and/or new speaker.

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14. (Currently Amended) Method according to claim 13, wherein said comparison is essentially based on a recognition step using ~~said a~~ starting or canonical lexicon (SL) as said current lexicon (CL).

15. (Currently Amended) Method according to claim 13, wherein for said comparison at least one recognition step is repeated using a phone or phoneme recognizer, so as to yield a sequence of actually uttered phones, phonemes, ~~or the like~~.

16. (Previously Presented) Method according to claim 13, wherein for said comparison said current pronunciation (CP) of said current speaker is compared to a canonical pronunciation, in particular so as to generate an initial set of pronunciation rules (IR) and/or to locate the pronunciation-related position of said current speaker in said pronunciation space (PS).

17. (Currently Amended) Method according to claim 1, wherein from said current lexicon (CL) recognition related information, pronunciation variants ~~and/or the like~~ which are not covered by the speaking behaviour and/or by the current pronunciation of the current speaker are removed, so as to decrease the amount of data to be evaluated.

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18. (Currently Amended) Method according to claim 1, which is designed for a plurality of source languages (SL) and/or of target languages (TL), in particular with respect to ~~said one or more~~ Eigenpronunciations.

19. (Previously Presented) System for recognizing speech which is capable of performing the method according to claim 1.

20. (Currently Amended) Computer program product, comprising computer program means adapted to perform and/or realize the method for recognizing speech according to claim 1 and/or the steps thereof when it is executed on a computer, a digital signal processing means ~~and/or the like~~.